

Alex Da Vera Cruz

Education

University of Central Florida

Bachelor of Science in Computer Science

Expected May 2027

Orlando, Florida

- **Relevant Coursework:** Data Structures & Algorithms, Linear Algebra, Calculus, Physics, OOP, Software Development, System Software, Computer Graphics, Operating Systems.

Technical Skills

Programming Languages: C#, C++, C, Python, HLSL, GLSL, Java, Lua, Dart, JavaScript.

Tools & API's: .NET, MERN, LAMP, Flutter, Unity, Unreal Engine, Firebase, OpenGL, Jenkins.

Experience

Graphics Programming Knights | [LinkTree](#)

Founder / President

June 2025 – Present

Orlando, Florida

- Established UCF's first Computer Graphics Programming club, growing a community to over 130 members within 3 months by leading a team of five officers to organize technical workshops, industry events, and club collaborations.
- Developed workshops on topics like shaders, rendering techniques, C++ programming, and math for CG.

Limbless Solutions

Assistant Scholar – Games Team

August 2024 – Present

Orlando, Florida

- Developing three VR and MR therapeutic serious games in Unity, serving 50+ patients with disabilities.
- Collaborating with a multidisciplinary team of 16 to engineer and deliver three distinct therapeutic games, contributing to both core programming and systems architecture.
- Selected as an exhibitor for the alt.ctrl.GDC 2025 showcase at the Game Developers Conference in San Francisco for Limbless Journey MR.

Computer Graphics Lab | [Repository](#)

Undergraduate Research Assistant

Jan 2025 – May 2025

Orlando, Florida

- Conducting research under Sumanta Pattanaik at the University of Central Florida by comprehending and implementing technical research papers into code and visualizations.
- Applying physically based rendering, shader programming, and other Computer Graphics topics into project.

Projects

Hack-a-Raster | C++, SDL3 | [Repository](#)

- Built a CPU Rasterizer from scratch with vector/matrix math, indexed rendering, barycentric interpolation, depth testing, and perspective projection.
- Built in raw C++, only relying on SDL3 for window handling and pixel drawing.

Box and Block VR | Unity, C#, OpenXR, Firebase, HLSL

- Developed a VR simulation of the Box and Block test for clinical participants, enabling data-driven therapy analysis.
- Built a data collection system for researchers, an API for our team's custom EMG controllers, and custom shaders written in HLSL.
- Engineered a reusable, service-agnostic Firebase plugin that decoupled data handling from specific projects, enabling streamlined cloud integration for all team applications and significantly reducing future development overhead.
- Wrote and maintained detailed documentation, streamlining onboarding and development for new team members.

Be4Real | TypeScript, Node.js, Express.js, MongoDB, Jest, Zod, Jenkins | [Repository](#)

- Developed RESTful API endpoints for post creation and feed retrieval using TypeScript, Express, and MongoDB, handling base64 image uploads and implementing cursor-based pagination for optimized load times.
- Implemented JWT-based authentication and authorization middleware to secure user-specific endpoints, with comprehensive error handling and input validation using Zod schema validation.
- Built MongoDB integration layer with ObjectId references and atomic updates for data consistency, supporting relational data between users and posts.